Overview of short course structure "Stage 1 in Drone Technology"

1) Content
2) Goals
3) Materials
4) Objectives

Lower school two-week course in a ten-week term.
Four one-hour lessons.
Goals This is to deliver a short course to all lower school ICT classes in a High School within a short space of time, say a term.
This could be followed up by "Stage 2 in Drone Technology" and so forth.
Delivered with regular class teacher present (negotiable) as observer to at least learn out-line of course and basic technics of flying should they want to be involved in teaching subject in the future.

Materials Drone used in class "Tello"
Cost and specs https://store.dji.com/product/tello
Coding for kids with the Tello
https://www.youtube.com/watch?v=5W0tGLk-RuM&t=37s
https://www.youtube.com/watch?v=YGypeydI6Lk

General https://www.makeuseof.com/tag/dji-tello/

Objectives
Inspire, Flying a drone, basic knowledge.

Marking scheme and key
20 marks (equates to 20% of two weeks of ten-week term.) raw scores out of 20 and percentage to class teacher for integration into final term or semester student mark.

10/20 basic flying skills;
minimum; take off, simple yaw, pitch and forward side movements, return home and land.
5/20 Basic CASA[1] Rules and regulations. (last lesson 15-minute test) Where, when and how you can fly a drone. 10 simple rules. CASA https://droneflyer.com.au/
5/20 Drone Technology theory.
Including; main parts of a quadcopter, how GPS works, basic materials, basic avionics; yaw, pitch and roll
Coding a flying robot in "Scratch" (simple coding language)
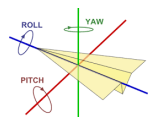
Content
Lesson one (I have tested all parts of this lesson plan on lower school classes many times and it works.)
1   Teacher "In this lesson every student will get the chance to fly a drone, and every one of the next three lessons after this."

        10-minute introduction to course (this outline) short remarks on what can drones do today and in the future. Q & A includes inspirational video clips, for example short sections from
https://www.ted.com/talks/raffaello_d_andrea_the_astounding_athletic_power_of_quadcopters#t-322773 excluding the technical language parts.

2   **5**-minute Teacher introduction to Task One
        basic flying skills - basic take-off and landing the quad.

3   **10** minutes teacher guided student flying (about two students) with all class watching.

4   **5**-minute introduction to Task 2 with worksheet.
        Drone technology theory parts of the drone, GPS etc.

5   25 minutes Students work on this document whilst every other students have about 2
        minutes on first flight in room in systematic say anti clockwise rotation so every
        student has opportunity to fly the drone.

6   Last 5 minutes summary of lesson, setting homework and outline of next lesson.

Homework short 5 question sheet on above video such as
1 What two objects did the demonstrator put on the drone?
2 What system lets the drone know where it is in the room, hint, your phone uses this to know
where in the world it is.
3 What part of the flying drone did the presenter not control?
4 Why did the presenter put glasses on for part of the demonstration?
5 How were the audience protected in the demonstration?

Some additional notes.

When I have completed lessons 2-4 I will upload them to http://www.mrgowland.com/

Some more advanced courses could include aerial photography and videography.
See Mr Gowland's YouTube aerial videography channel at
Sky View Aerial Videography
Or search in YouTube "john gowlands Sky View Aerial Videography" select the first link.

There are no limits to integrating every aspect of ICT into drone technology.
Future "stages" could include upper school including VET courses, some of which are being
pioneered by a few High Schools in the eastern states.
https://uavair.com.au/high-school-uav-vet-course/

https://sheflies.com.au/for-schools/
https://www.australiancurriculumlessons.com.au/forums/topic/drones-in-school/

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[1] **CASA** Civil Aviation Safety Authority
https://www.casa.gov.au/
The Civil Aviation Safety Authority is a government body that
regulates **Australian** aviation safety.